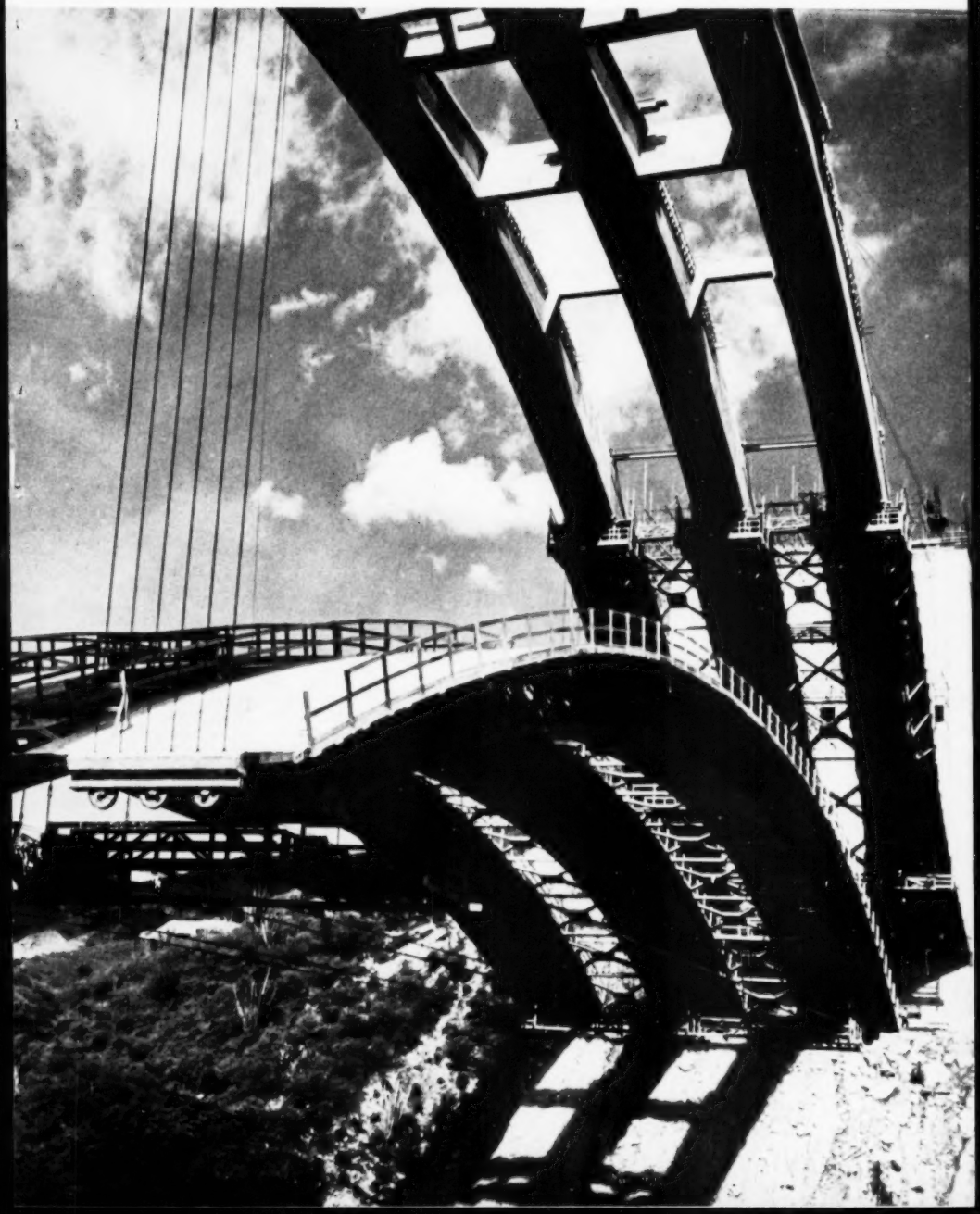
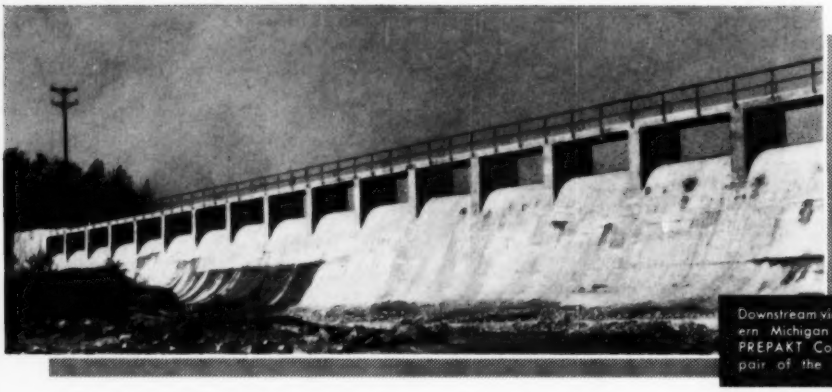
ACI News Letter

Vol. 24, No. 4 JOURNAL of the AMERICAN CONCRETE INSTITUTE December 1952





Downstream view of Northern Michigan dam after PREPAKT Concrete repair of the gate piers.

FOR ECONOMY IN LONG LASTING CONCRETE REPAIR CHOOSE PREPAKT!

Deteriorated concrete gate piers supporting walkway across top of dam.

Repaired piers showing structure of high-strength weather-resistant PREPAKT CONCRETE.

The use of PREPAKT Concrete and PREPAKT methods provided outstanding construction economies in the repair of this Northern dam. But, more important, it provided the pier structure with long-lasting high strength and exceptionally strong bond plus resistance to freezing and thawing action.

PREPAKT Concrete is extremely dense and requires 30% to 60% less portland cement than ordinary concrete of equal strength. This results in high impermeability to moisture and high resistance to all forms of deterioration.

PREPAKT Concrete may be made under water as well as in the dry, and PREPAKT methods provide underwater placement without costly caissons or unwatering operations.

This and many other PREPAKT advantages make it a natural choice for all types of structural concrete.

Full information on this and other PREPAKT installations may be had by calling or writing the Main Office at Cleveland 14, Ohio.

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ACI News Letter Contents

December 1952

On the Cover—Lowering of the central section of the falsework on one of the three prestressed concrete bridges built on the new Caracas-La Guaira highway in Venezuela. Said to be the largest concrete spans in the Americas, this project was described by Robert Shama, consulting engineer, Freyssinet Co., Inc., New York, at ACI's Chicago regional meeting last September.

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Preview of Technical Program 49th Annual Convention

February 17-19, 1953
Statler Hotel
Boston, Massachusetts

Annual convention program papers selected by the Technical Activities Committee at its meeting November 14 will comprise eight technical sessions.

The opening convention session presents standards and special publications under consideration for proposal or revision, followed in the afternoon by a general session. As an added attraction, movies on concrete operations will be shown in the evening. Concurrent morning sessions on the second day cover vibration of concrete and design. A session on precast concrete and another general session are offered concurrently for the afternoon program. The last day is devoted to research and a panel session on construction problems.

Bearing in mind that a few last-minute changes might be necessary, the final program is expected to be about as follows:

TUESDAY, FEBRUARY 17

10:30 a.m.—Consideration of standards and special publications

"Proposed Manual for Detailing Reinforced Concrete Highway Structures"

"Proposed Standard Specifications for the Design and Construction of Reinforced Concrete Chimneys"

"Manual of Concrete Inspection"

"Revision of Minimum Standard Requirements for Precast Concrete Floor Units"

ACI-PCA Film, "Quality Concrete"

2:00 p.m.—General

"Building Foundations on Soft Ground"

"Development of a Device for Direct Measurement of Compressive Stress"

"10-Year Report on Long-Time Study of Cement Performance in Concrete"

"Recent Changes in Concrete Construction Specifications for Civil Works and Why They Were Made"

"Structural Refractory Concrete"

Continued on p. 4

Continued from p. 3

Evening—Movies

"Operation Concrete"

"Prefabrication of Prestressed Concrete Roof Joists"

"We Call It Big Creek"

"Operation Greenhouse"

"Keep Progress Rolling in Texas"

WEDNESDAY, FEBRUARY 18

9:00 a.m.—Vibration of concrete—Concurrent session

"Compacting Concrete by Vibration"

"Vibration Practices in Pipe, Precast and Block Manufacture"

"Vibration Practices in Mass Concrete Construction"

"Vibration Practices in Road Construction"

"Vibration Practices in Structural Work"

"Effect of Vibration on Air Content of Mass Concrete"

"Efficiency of Vibration"

9:00 a.m.—Design—Concurrent session

"Limit Analysis and Design"

"Factors of Safety for Limit Design"

"Stability of Thin-Shell Structures"

"Yield-Line Theory for the Ultimate Strength of Reinforced Concrete Slabs"

"Static and Dynamic Elastic Behavior of Reinforced Concrete Beams"

12:15 p.m.—General luncheon

Presentation of Awards

Introduction of new Officers and Directors

Address of the Retiring President

2:30 p.m.—Thin-shell precast concrete—Concurrent session

"Thin-Shell Rib Panels Site Fabricated in Plastic Molds"

"Factory Production and Handling Problems of Thin-Shell Rib Panels"

"Precast Buildings for Ammunition Storage"

"4,000,000 sq ft of Thin-Shell Rib Panels for Roof Framing"

"Fabrication and Erection of One-Story Barracks Framing Precast for Site Assembly"

2:30 p.m.—General—Concurrent session

"Concrete for Radiation Shielding"

"Accidental Air in Concrete"

"Correlation of Laboratory Freezing and Thawing with Field Exposure"

"Strength and Durability of Concrete Containing Chicago Fly Ash"

"Guniting a 65-ft Dome"

THURSDAY, FEBRUARY 19

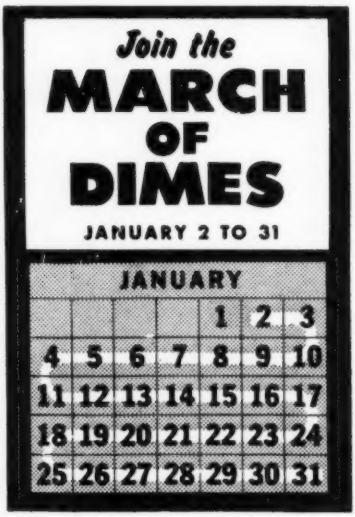
9:00 a.m.—Research

The annual open meeting of Committee 115, Research, conducted by S. J. Chamberlin, chairman, and George W. Washa, secretary.

2:30 p.m.—Panel session

Stanton Walker will serve as chairman of a panel of experts conversant with construction problems who will be able to answer and discuss questions about concrete on small and medium sized jobs.

Reservations for rooms at the Statler Hotel, convention headquarters, should be made by the individual, informing the hotel that the accommodations are desired in connection with the annual ACI convention. Shortly after January 1 all members will receive a preliminary program through the mail—watch for it!



Positions and Projects — ACI Members

Gunlock becomes commissioner

Virgil E. Gunlock, for the last eight years commissioner of subways and superhighways, has been appointed commissioner, Department of Public Works, Chicago, Ill. In his new job Mr. Gunlock takes command of one of the biggest public works departments in the United States.

Under his guidance, work has been started on four main routes of the comprehensive superhighway system of Chicago and on the West Side Subway. The four routes are a part of the 67 miles of superhighways to be built under his direction at an estimated cost of more than 466 million dollars.

Kauer appointed chief engineer

T. J. Kauer, who resigned as state highway director, was appointed chief engineer of the Ohio Turnpike Commission. Mr. Kauer was employed by the Ohio State Highway Department from 1927 to 1940, serving as maintenance engineer, construction engineer, and division engineer in Cleveland and in Columbus as federal projects engineer and acting chief engineer of construction.

Journals in Microfilm

ACI members and JOURNAL subscribers may obtain the two most recent completed *Proceedings* volumes (including discussion) in microfilm. For those with whom storage of technical literature is critical and who have equipment for reading microfilm this is an economical means of maintaining a file of ACI literature. *Proceedings* V. 46, Sept. 1949 to June 1950, including discussion, is $3.90. *Proceedings* V. 47, Sept. 1950 to June 1951, including discussion, is available at $3.60. Order direct from

University Microfilms
313 N. First St.
Ann Arbor, Michigan
Cable address: Microfilms

Upson honored

Maxwell M. Upson, president, Raymond Concrete Pile Co., New York, N. Y., has been honored by the American Society of Mechanical Engineers, with a 50-year membership pin. Mr. Upson first became a member of ASME in 1901 and is now a fellow and a life member of that society.

Topping, Waidelich named to BRAB

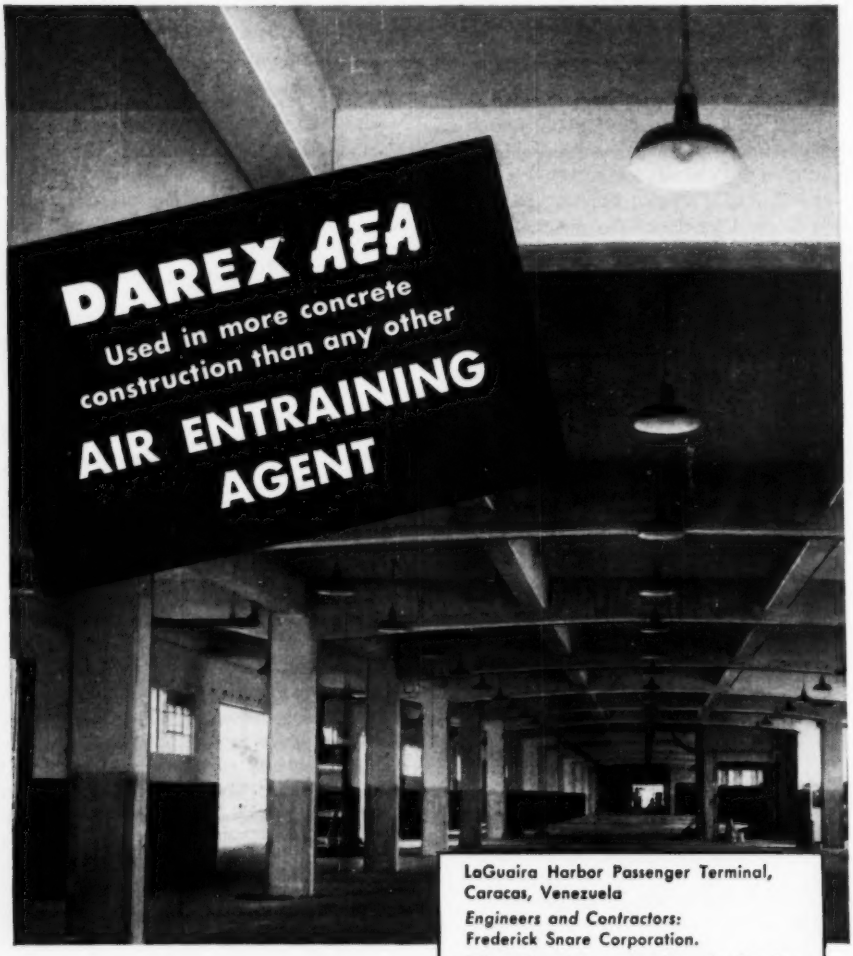
C. H. Topping, principal architect and civil engineer, E. I. DuPont DeNemours and Co., Inc., Wilmington, Del., and Alfred T. Waidelich, vice-president, The Austin Co., Cleveland, Ohio, have been appointed by the National Research Council to the Building Research Advisory Board, Washington, D. C.

New steel company

A new steel company, the Stressteel Corp., has been formed in the United States to produce large-diameter, high-strength steel tensioning units for the prestressing of concrete. Stressteel tensioning units, consisting of bars ½ in. to 1⅛ in. in diameter and up to 80 ft long, together with their end anchorages, were developed by Donovan H. Lee, a London consulting engineer, and McCalls Macalloy Ltd., Sheffield, England. Curzon Dobell, New York, N. Y., is president of Stressteel Corp.

France honors Kaiser

The Republic of France recently bestowed Knighthood in the Legion of Honor upon Henry J. Kaiser, president, Permanente Cement Co., Oakland, Calif., at an international and civic presentation banquet. In conferring the title of Chevalier (Knight) and the Cross of the famed Legion of Honor, Roger Seydoux, Minister Plenipotentiary of France, paid tribute to Mr. Kaiser as the "greatest builder of modern times," and "one of the greatest industrialists and symbols of the industrialization of the West."



LaGuaira Harbor Passenger Terminal, Caracas, Venezuela

Engineers and Contractors:
Frederick Snare Corporation.

When this photo was taken, the first bay had been painted, others had not. Note the smooth-as-plaster texture of the painted DAREX AEA concrete!

On job after job these facts have been proved; air entrained concrete with air content closely controlled through the use of Darex AEA places easier and faster, finishes better, has better surface texture, is more homogeneous and more durable when exposed to freezing and thawing. Readymix concrete plants everywhere can furnish concrete made with Darex AEA. Ask your supplier, or write to us for helpful 20-page illustrated booklet.

D A

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San Leandro, Calif • Montreal 32

Glidden promoted

William R. Glidden, bridge engineer of the Virginia Department of Highways, Richmond, Va., for the past 35 years, has been promoted to the post of assistant chief engineer.

Civil service examinations

The U. S. Civil Service Commission recently announced that examinations are open for engineer positions in the Bureau of Reclamation. Persons applying for the engineer examination must have completed a professional engineering curriculum or have had equivalent experience. Applications for these examinations are to be filed with the Board of Civil Service Examiners at the Bureau of Reclamation in Denver, Colo.

ASTM announces election

The American Society for Testing Materials has announced the election of Robert J. Painter as executive secretary and Raymond E. Hess as associate executive secretary.

Robert S. Johnston

Robert S. Johnston, civil engineer, Yardley, Pa., died September 26, 1952. Early in his career he taught in the engineering school at the University of Pennsylvania and at Lafayette College, Easton, Pa. During World War I he was employed as assistant chief in a division of the U. S. Bureau of Standards, Washington, D. C. Later, he was in charge of the Port of New York Authority Research Laboratory, at which time he did considerable work in connection with the George Washington bridge. In 1930 he entered the employ of John A. Roebling's Sons Co. in charge of their research laboratory.

In 1941 when World War II began, he went to Washington, D. C., to work with the War Production Board until its dissolution. He then returned to Yardley, Pa., where he retired from business and devoted his time to his favorite hobby—raising flowers. Mr. Johnston had been an ACI member since 1921.

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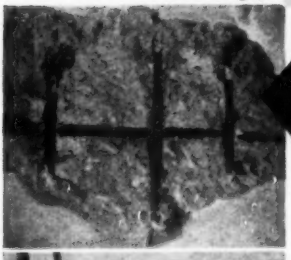

Typical example of spalling. Note corrosion of reinforcing rods exposed by disintegrating concrete.

Reinforced with meshing, the area is restored with gun-applied RESTO-CRETE* by Western Waterproofing Co.

Sound engineering methods, finest materials, trained technicians and over 35 years' experience assure the job will be done *right* when you consult Western. All work done under contract, fully insured, performance guaranteed.

- Protection from Water Damage (above or below ground, interior or exterior)
- Building Restoration
- Tuckpointing

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Standard Cement plus *Solvay Calcium Chloride*

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- √ Permits Positive Control at all Temperatures
- √ Avoids the Stocking of Special Cement
- √ Assures High Ultimate Strength
- √ Provides Additional Cold Weather Protection
- √ Includes "Built-in" Curing

To speed up operations, increase output and permit use of concrete in shorter time — especially in cold weather—add Solvay Calcium Chloride to your Portland Cement concrete mixes. Works equally well with all Portland Cements, including standard, high early, air entrained and low heat cements.

WRITE TODAY FOR FREE BOOK CONTAINING FULL DETAILS

Filled with valuable information, as well as answers to all your questions about the use of Calcium Chloride in concrete. "The Effects of Calcium Chloride on Portland Cement" is available on request from Solvay. Contractors, engineers, architects—everyone who works with concrete—will find this book extremely useful. For your free copy, write today on your business letterhead.

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HHFA reports on snow load studies

The weights of snow which roofs should be designed to withstand in various parts of the United States, together with recommendations for roof load requirements of local building regulations, are reported in issue No. 3 of *Housing Research*, published by the Division of Housing Research, Housing and Home Finance Agency.

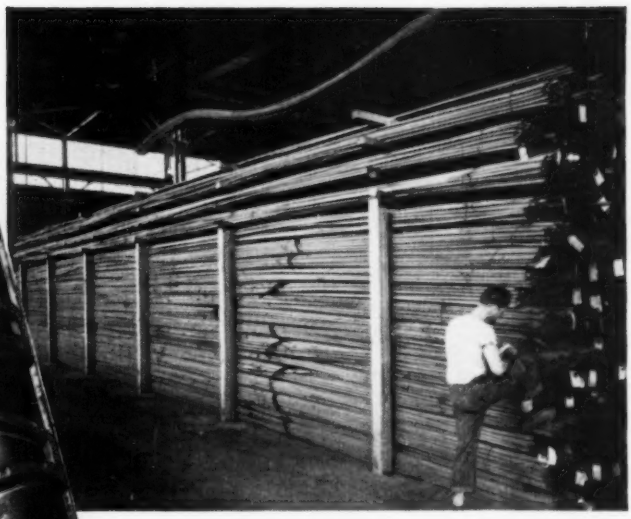
Prepared especially for building code officials, engineers, and architects, the article in *Housing Research* is based on research undertaken by the United States Weather Bureau and sponsored by HHFA. A study of snowfalls in different parts of the country for the past 50 years was made to supply data showing the probable maximum snow load roofs would be called upon to withstand. The maximum load was defined as the weight of the seasonal snowpack plus the weight of the maximum probable snow storm for northern areas, and as the weight of the maximum observed snowfall plus the maximum probable snowfall for southern areas. From this information vertical live roof loads imposed by snow were computed, and from these, in combination with other factors, the suggested design data were derived.

Copies of this issue may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 30 cents.

New York City to allow fly ash in concrete construction

The New York City building code is expected to be the first in the country to permit use of fly ash, a waste product from coal-burning power plants, in concrete, according to *Engineering News-Record*.

The magazine relates that reliable sources say that New York City Department of Housing and Building will recommend to the city council an amended bill permitting its use. As amended, the bill will allow fly ash to be used in amounts up to 20 percent of the portland cement content. Its use will be carefully controlled, however, because little is known about its chemical properties. Fly ash has already been used successfully in mass concrete in some of the dams being constructed in the western United States.



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When you specify Bethlehem Reinforcing Bars—in any tonnage, any standard size—you get new-billet steel, carefully fabricated to meet the exact requirements of your job.

After Bethlehem Bars are estimated, placing plans and shop lists are broken down to job floors or sections. The bars are sheared to the proper length and then accurately shaped on modern bending machines. Bethlehem Bars reach your job-site bundled, tagged, with bar lists included, and ready for instant placing.

Specially designed lugs—high and closely spaced—give Bethlehem Reinforcing Bars firm anchorage in concrete. These lugs minimize slippage at working loads and help prevent wide tensile cracks.

Bethlehem Bars, coupled with our fabricating service, can strengthen and speed your next concreting job. Our nearest sales office will be glad to furnish more information. Or write to us at Bethlehem, Pa.

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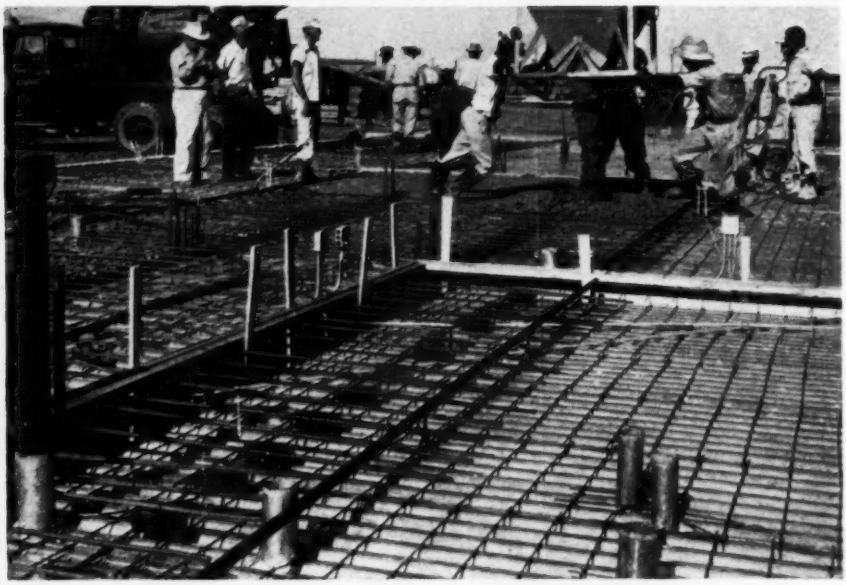

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Cofar Saves Steel

Permits monolithic continuous slab design; reduces framing by reducing slab deadweight.

Cofar Saves Cement

Eliminates ineffective concrete below reinforcement, yet allows for full effective design depth.

Cofar Saves Wood Forms

Cofar *does* the forming job . . . makes any other forms unnecessary.

Cofar Saves Time

Furnished cut to fit your building frame, with immediate working surfaces for your trades, Cofar allows for fastest possible concrete placing.

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Provides all-positive steel (replacing conventional re-bar) in concrete slabs —up to 14-foot span—with the Cofar reinforcement forming the structural slab as well, with less total weight than wood forms.

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Who's Who This Month

S. J. Chamberlin

"Spacing of Spliced Bars in Tension Pull-Out Specimens," p. 261, is described by S. J. Chamberlin, professor of theoretical and applied mechanics, Iowa State College, Ames.

Professor Chamberlin's professional experience includes work with the Missouri Pacific Railroad and the Illinois Division of Highways. For several years he taught drawing at the Burlington Junior College, and joined the faculty of Iowa State College in 1936. His work includes both teaching and research.

He received his BS degree in civil engineering from the University of Illinois in 1928 and his MS, majoring in highway and railway engineering, from Iowa State in 1931.

Professor Chamberlin has been an ACI member since 1940 and is chairman, ACI Committee 115, Research, and a member of ACI Committee 711, Precast Floor Systems for Houses. In 1939 he received the ACI Wason Medal for the "most meritorious paper."

George C. Ernst

"Stability of Thin-Shelled Structures," p. 277, is contributed by George C. Ernst, professor and chairman, Department of Civil Engineering, University of Nebraska, Lincoln.

Professor Ernst graduated from the University of Michigan in 1925 with a BS in CE, and has been associated with academic work since 1930 at Iowa State College, University of Maryland, and University of Nebraska.

Professor Ernst is a registered professional engineer in Iowa. He is a member of ASCE, ASTM, SPEE, Sigma Xi, Tau Beta Pi, and has been an ACI member since 1935.

Donald C. McNeese

Donald C. McNeese, assistant professor, Department of General Engineering, University of Washington, Seattle, is the author of "Early Freezing of Non-Air-Entraining Concrete," p. 293.

Following some short assignments with the Wyoming State Highway Department and the Civilian Conservation Corps, Department of Interior, Professor McNeese was employed in 1940 as a junior engineer for the U. S. Army Engineers, Seattle, Wash. His first assignment was as field engineer for the construction of an airbase at Yakutat, Alaska. The adverse weather conditions, the muskeg, and the remoteness of this project presented many problems which added greatly to Mr. McNeese's experience. The major item of construction was grading and concrete paving of runways. He worked as surveyor, concrete inspector and technician, and as general field engineer.

In 1942 Mr. McNeese was transferred to the Seattle office, where he worked as office engineer for many of the war projects being constructed in Alaska. Among these projects were the large army bases built on Adak and Shemya in the Aleutian Islands. In 1944 he transferred to the Alaskan Department at Anchorage, where he was employed in the Engineer Supply Division, and later became head of this organization. In 1946 he resigned from the Army Engineers and obtained a position teaching engineering at the University of Washington.

Professor McNeese received a BS degree in civil engineering in 1940, and a CE degree in 1950, from the University of Wyoming. He is a member of ASCE and ASEE.

Elihu Geer

"Determining Cable Profiles for Prestressed Concrete Beams," p. 301, introduces Elihu Geer, director, Department of Civil Engineering, University of Detroit, Detroit, Mich.

Early in his career Professor Geer worked on design and detailing of structures for CCC and St. Louis Railway, Board of Wayne County Road Commissioners, and the Pere Marquette Railway. He taught part time in 1946, and in 1947 he joined the full-time faculty of the University of Detroit. He became acting director of the department of civil engineering in 1948 and director in 1950.

Professor Geer received a CE degree from the University of Cincinnati in 1924 and an MSE degree from the University of Michigan in 1948. During World War II he spent five years in the U. S. Army, attaining the rank of lieutenant colonel. Subsequently, as a colonel in the reserves, he organized and commanded a field artillery group and a research and development unit.

Professor Geer is a member of ACI, ASCE, ASEE, Engineering Society of Detroit, Tau Beta Pi, Chi Epsilon, and is a registered professional engineer in Michigan.

Edward C. Thoma and Robert E. Schneebeli

"Method for Preparing SR-4 Strain Gages for Embedment in Concrete," p. 305, is co-authored by Edward C. Thoma, associate professor of civil engineering and engineering mechanics, Purdue University, Lafayette, Ind., and Robert E. Schneebeli, structural designer, Boyd Phelps and Associates, Michigan City, Ind.

Professor Thoma, although engaged on the instructional staff, has maintained a keen interest in research on concrete and other engineering materials. He has assisted in several concrete research projects undertaken by the Purdue Engineering Experiment Station; namely, studies of blended concretes, plastic flow of concrete, and vapor studies in masonry construction.

Professor Thoma graduated from Purdue University with a BS in CE in 1938. He received an MSE from Purdue in 1941. He is a member of ACI, ASCE, ASEE, Sigma Xi, Tau Beta Pi, and Chi Epsilon.

Mr. Schneebeli graduated from Purdue University in 1951 and stayed for the remainder of the year to take a few graduate courses. During the summer session he was employed by the Purdue Joint Highway Research Project, and he continued on a part-time basis for the following semester while employed by the university as freshman counselor for the engineering schools.

In February, 1952, he accepted a position with Boyd E. Phelps, Inc., consulting engineers. He is a member of ASCE, SAME, Tau Beta Pi, and Chi Epsilon.

Anthony Kooharian

"Limit Analysis of Voussoir (Segmental) and Concrete Arches," p. 317, one of the prize papers at the 1952 New England Regional Conference of ASCE student chapters, is presented by Anthony Kooharian, graduate division of applied mathematics, Brown University, Providence, R. I.

Mr. Kooharian attended Brown University from 1948-52. He majored in structures and fluid dynamics and in 1952 received a BS in engineering.

He is an associate member of Sigma Xi, and a past officer of the Brown Engineering Honor Society.

J. Calleja

J. Calleja, head, Physical Chemistry Department, Instituto Tecnico de la Construccion y del Cemento, Madrid, Spain, tells about the "Effect of Current Frequency on Measurement of Electrical Resistance of Cement Pastes," p. 329.

From 1946 to 1947 he worked with Prof. U. R. Evans in the Corrosion Research Section, Chemical Laboratory, University of Cambridge, England, publishing a paper on metallic corrosion.

Dr. Calleja gave a course of lectures in 1951 on the training of laboratory and control assistants in the cement industry and is the author of various papers on the setting of hydraulic materials and structure of portland cement clinker.

He obtained his PhD in 1946, having worked with Prof. A. Rius on electrochemistry. Dr. Calleja is especially interested in the physicochemical aspect, as much in the manufacture as in the use of hydraulic materials.

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New Members

The Board of Direction approved 51 Individual, 2 Corporation, 13 Junior, and 25 Student Members for October. With adjustments for losses—resignations, deaths, nonpayment—the total membership November 1 was 5929.

Individual

ALLING, EDWIN S., Durham, N. H. (Asst. Prof., Univ. of New Hampshire)
ALTVATER, GEORGE, Portland, Ore. (Struct. Engr., City of Portland)
ANNABLE, CHARLES H., Edmonton, Canada (Mgr., Universal Concrete Accessories Ltd.)
BISHOP, GEORGE F., JR., Chicago, Ill. (Struct. Field Representative, PCA)
BOND, A. E., London, England (Secy., Cast Stone & Concrete Federation)
BROWN, Francis L., New York, N. Y. (Partner, Brown & Blauvelt, Cons. Engrs.)
BURCHARD, ABE, JR., Knoxville, Tenn. (Res. Engr., Tenn. Highway Dept.)
CALDERA, DAYTON, Managua, Nicaragua (Constr.)
CASTANEDA F., RAFAEL, Baton Rouge, La. (St., La. State Univ.)
CLARKE, C. BERNARD, Kingston, R. I. (Prof., Univ. of Rhode Island)
CUESTA, GUSTAVO DEL TORO, Cabo Rojo, P. R. (Govt. of P. R., Planning Board, Planification Engr.)
FLATO, SHLOMO, Tel-Aviv, Israel (Struct. Engr.)
FOSTER, HAROLD C., San Diego, Calif. (Cons. Engr.)
GIDDINGS, RAY C., Portland, Ore. (Super., Inspection, Charlton Laboratory)
GORBENKO, GEORGE, New York, N. Y. (Sr. Designer, Checker, Ebasco Services, Inc.)
HOFF, TRYGVE, Cleveland, Ohio (Engr., Trygve, Hoff & Assocs.)
HUANG, I. C., New York, N. Y. (Designing, DiStasio & Van Buren, Cons. Engrs.)
HUDSON, F. C., Halifax, Canada (Genl. Supt., Municipal Spraying & Contracting Ltd.)
HUMPHREY, HOMER A., Chicago, Ill. (Mgr., Tech. Personnel Training Bureau, PCA)
HUSS, VICTOR C., Kirkwood, Mo. (Design, Detailing, Field Super., Eagle Iron Works)
JOHNSON, CARROLL L., Des Moines, Ia. (Genl. Contr.)
JONES, ROBERT E., Alhambra, Calif. (Highway Engr., Los Angeles County Road Dept.)
JOY, DONALD G., Hempstead, L.I., N.Y. (Sales Engr., American Steel & Wire Div., U. S. Steel)
KING, RALPH N., Clearwater, Fla. (Design, Drafting, Inspection, Super., Southeastern Engrg. Co.)
KLICK, MAURICE P., Los Angeles, Calif. (Chf. Engr., Consolidated Western Steel Co.)
KNOX, WILLIAM B., Bentley, Near Doncaster, England (Research Engr., The Cementation Co., Ltd.)
LAUGHLIN, A. A., Winnipeg, Canada (Bridge Engr., Manitoba Provincial Govt.)
MACCHI, A. J., Hartford, Conn. (Cons. Engr.)
MACDONALD, ALAN, Trenton, Canada (Res. Engr., N. S. Power Comm.)
MALHOTRA, H. C., Punjab, India (Constr., Public Works Dept.)
MAROTO, JORGE L., Alajuela, Costa Rica (C. E., Instituo Costarricense de Electricidad)
MATOTAN, WILLIAM I., Old Albuquerque, N. M. (Struct. Engr., Corps of Engrs.)
MAUSER, DONALD B., Inglewood, Calif. (Struct. Engr., Los Angeles Dept. of Public Works)
MORGAN, HARRY S., Chicago, Ill. (Super., Partner, Consoer, Townsend & Assocs.)
NURSE, H., Chamblee, Ga. (Engr., Builders Concrete Products)
PALMER, S. E., Ile Maligne, Canada (Chf. Concrete Inspector, Milton Hersey Co., Ltd.)
RODRIGUEZ, HIPOLITO M., New York, N. Y. (C. E., Arch. Engr., Federal Housing Admin.)
ROJAS MATA, VICENTE, Edo Zulia, Venezuela (Resident Engr., Shell Caribbean Petroleum Co.)
ROTALO, LEONARD, Salem, Ore. (Bridge Design, Ore. State Highway Dept.)
ROY, LEO PAUL, Montreal, Canada (Cons. Engr.)
STEELE, RICHARD K., Camarillo, Calif. (Dir. of Framed Structures Div., U. S. Navy, Civil Engr. Res. & Evaluation Lab.)
STEIN, R. L., Los Angeles, Calif. (Dist. Mgr., A. C. Horn Co., Inc.)
STEWART, HARRY K., JR., Honolulu, T. H. (Struct. Engr., The Hawaiian Elec. Co., Ltd.)
SHOFELINOV, ALEXANDER, E. Chicago, Ind. (Struct. Engr., Designer, H. B. Olney, Inc.)
VAN HOVEN, H. D., JR., St. Paul, Minn. (Admin., Research Dir., Van Hoven Co., Inc.)
WALTER, HAROLD N., Cooma, Australia (Engr., Snowy Mountains Hydro-Elec. Authority)
WATERS, ALFRED E., II, La Canada, Calif., (Struct. Design, Quinton Engrs., Ltd.)

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FEATHERLITE CORP., Strawn, Texas (H. Hicks Allen)

Junior

AHUJA, S. P., Punjab, India (Research Asst., Field Research Lab.)
ALTER, IZRAEL, Tel-Aviv, Israel (Struct. Engr.)
BARNES, C. GLEN, Dallas, Texas (Struct. Design, Struct. Drafting, Frank W. Chappell, Cons. Engr.)
CAUSEY, DAVID F., Urbana, Ill. (Highway Engr., Ill. Div. of Highways)
DOBLES, RODOLFO, San Jose, Costa Rica (Design, Minister of Public Works)
ECHANDI, RICARDO M., San Pedro, Costa Rica (Design, Minister of Public Works)
GALVAN A., JOSE GUILLERMO, San Salvador, C. A (Drafting, Design, Div. of Public Water Works)
GOLDSCHMIDT, NAFTALI, Tel-Aviv, Israel (Struct. Design, Mitken, C. E., Schneirson)
GONZALES, JORGE E., Marianao, Cuba (C. E., Inspection, National Power Comm.)
LEVIHN, PAUL, Casablanca, French Morocco (Asst. Dept. Engr., PUSOM)
PARRA, DIEGO J., Caracas, Venezuela (Bridge Design, Venezuelan Ministry of Public Works)
SPARTIN, PETER E., Chicago, Ill. (United Electric Coal Cos.)
TORRES, ANGEL, Newark, N. J. (C. E., N.J. Highway Dept.)
TUN, KYAW, New York, N. Y. (Engr., Commissioners for the Port of Rangoon; Kanppen-Tippetts-Abbett-McCarthy, Engrs.)
WEAVER, J. R., Jesup, Ga. (Office Engr., Ebasco Services, Inc.)

Student

ADAMS, RICHARD W., Champaign, Ill. (Univ. of Ill.)
BAJOREK, JAY., Chicago, Ill. (Univ. of Ill.)
BURKE, EDMUND M., Mt. Vernon, N. Y. (New York Univ.)
CARLSEN, ALLEN W., Chicago, Ill. (Univ. of Ill.)
CHOWCHUVECH, VISARL, Ann Arbor, Mich. (Univ. of Mich.)
CORTES N., CLAUDIO, San Jose, Costa Rica (Univ. of Costa Rica)
DUKE, GODFREY L., Villa Park, Ill. (Univ. of Ill.)
GAM, JOHN SAMUEL, Cambridge, Mass. (MIT)
GETZ, MARTIN, Forest Hills, N. Y. (New York Univ.)
GOMEZ, MANUEL, W. Lafayette, Ind. (Purdue Univ.)
GUSTAFSON, CARL H., New York, N. Y. (New York Univ.)
HALE, JOHN S., JR., Pittsburgh, Pa. (Carnegie Tech.)
KLAUSMEYER, THOMAS H., Urbana, Ill. (Univ. of Ill.)
LUBETKIN, BERNARD M., Waldwick, N. J. (New York Univ.)
LWIN, THEIN, Iowa City, Ia. (Univ. of Iowa)
MARTIN, RAYMOND G., El Monte, Calif. (Univ. of S. Calif.)

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Honor Roll

February 1—October 31, 1952

Still leading the Honor Roll is Newlin D. Morgan who proposed 10 more new members in October giving him a total of 37 credits. Ricardo Acosta and F. Thomas Collins are tied for second place with 12 credits each. All those who have introduced new members before February 1 will be listed in the March, 1953, News Letter. Will your name be shown?

Increased membership means increased scope for Institute work. It means more and better service for present members. But please remember—ask nobody to join the Institute as a favor to you. Get him to join as a favor to HIMSELF. The only new member worth getting is the one who is in a position to benefit by what the Institute is doing.

Newlin D. Morgan	37
Ricardo Acosta	12
F. Thomas Collins	12
Howard Simpson	11
W. B. Summer	10
C. H. Scholer	8
R. A. Iliya	7
Theodore O. Reyhner	7
Lawrence L. Schwinn	7
Walter H. Price	6
Eddy N. Hernandez	5
Henry L. Kennedy	4½
Joseph A. Brunner	4
George C. Ernst	4
Myle J. Holly, Jr.	4
T. C. Kavanagh	4
Arturo Obadia B.	4
J. L. Savage	4
Chester P. Siess	4
G. B. Southworth	4
Miguel Angel Abalo	3
Fred C. Bamman	3
Albert Goldberg	3
Hunter W. Hanly	3
Samuel Hobbs	3
M. L. Hurst	3
Lane Knight	3
Alvin C. Loewer, Jr.	3
Fred F. Loy	3
I. E. Morris	3
K. E. Whitman	3
C. E. Wuerpel	3
Sterlin L. Bugg	2½
Quentin Rust	2½
Jacob Adler	2
MacGregor S. Anderson	2
Pedro Arismendi A.	2
M. A. Arnold	2
T. Asano	2
Frederick L. Browne	2
D. J. Cameron	2
J. R. Cassell	2
Frank W. Chappell	2
Francisco J. Cordova	2
Leo H. Corning	2
A. E. Cummings	2
Raymond E. Davis	2
E. Gaillard Dotterer	2
M. F. duPont	2
John R. Dwyer	2
Harlan H. Edwards	2
G. E. Elsenhans	2
H. B. Emerson	2
L. G. Farrant	2
John Jay Fina	2
Russell S. Fling	2
J. R. G. Hanlon	2
John M. Hayes	2
E. L. Howard	2
Chuzo Itakura	2
M. H. Khalili	2
Shu-tien Li	2
Wm. E. McBride, Jr.	2
James A. McCarthy	2
A. J. McElrath	2
Nathan Newmark	2
F. J. Ochoa U.	2
Kiyoshi Okada	2
Dan H. Pletta	2
I. S. Rasmusson	2
Rafael Rodriguez	2
Mills Sampey	2
Saul Shaw	2
Jack N. Sparling	2
Willard H. Stevenson	2
Herbert M. Stoll	2
J. Sumner	2
Anton Tedesko	2
John P. Vertrees	2
Ivan M. Viest	2
George E. Weingerter	2
Henry Wilckens	2
Anis Yarid	2
Robert Zaborowski	2

DID YOU FILL OUT THE CARD?

Recently all members received postcards to be filled out and returned for the 1953 Directory.

All changes of address and employment must be received before January 15. If your business or resident address has been changed since your card was returned, please notify us.

To have your name, address, and employment shown exactly as you wish in the 1953 Directory, please send your card as soon as possible to avoid as many last-minute changes as possible.

NRMCA truck mixer tests

The National Ready Mixed Concrete Assn.'s laboratory staff and facilities at the University of Maryland were occupied almost exclusively during the summer with an investigation of the mixing efficiency of ready-mixed concrete truck mixers. These tests were sponsored jointly by NRMCA and the Truck Mixer Manufacturers Bureau.

The mixer efficiency investigation included 12 different truck mixers representing all major types manufactured by the six members of the TMMB. Approximately 400 cu yd of concrete were mixed and tested, involving nearly 2000 compression test cylinders, 900 ball penetration tests, 600 slump tests and 300 wash tests of composition of the concrete, besides numerous supplementary tests of the aggregates, cement and concrete.

At a drum speed of about 4 rpm, there was no significant change in the characteristics of the concrete up to a period of about 1 hr. During that time the drum had turned 100 revolutions (after the water was in) and was idle about ½ hr while three sets of samples were being taken. Between 1 and 2 hr there was significant falling-off in slump and ball penetration and a slight reduction in air content but no significant change in strength. At the end of 2 hr (300 revolutions), the concrete was retempered by addition of about 3 gal. of water per cu yd but the slump remained very low, the air content was still further reduced and the strength was reduced about 15 percent.

For the fast-mixing speed there was no difference in consistency or air content between samples taken after 20 and 60 revolutions (7 and 20 min.), and the differences in strength were probably not significant. At 200 revolutions there was a reduction in slump but the measured air content was slightly higher; after 500 revolutions the concrete was very stiff and the air content was back down to approximately that of the first sample.

In connection with mixing 92 batches of concrete used in the truck mixer tests, accurate determinations of aggregate moisture contents were made. In the case of sand, three methods were used to permit comparisons of their accuracy. First, the free moisture was estimated by eye and by squeezing the sand in the hand, the same technician performing this operation for each batch; then one or more determinations were made using the Speedy Moisture Tester (a device which measures moisture in terms of pressure developed during the reaction between calcium carbide and the water in a 6-g sample of the sand in a sealed container); and finally, the moisture content was checked in the laboratory by actual drying of two or more samples, either over a hot plate or in an oven.

It was found that the amount of free moisture in the sand could be estimated with a fair degree of accuracy. The average difference between the estimate and the amount determined by drying was only 0.5 of a percentage point. In only five cases out of 89 did the difference exceed one percentage point and these occurred, in general, after heavy rains when a small portion of the sand in the bin was very wet and made difficult the procurement of representative samples.

Battelle Memorial Institute builds European research centers

The cornerstone for a new research center at Frankfurt/Main, Germany, to serve the industry of that country, was placed October 31. The new Battelle Memorial Institute for Germany is being established by Battelle Memorial Institute, American research foundation at Columbus, Ohio.

Simultaneously, Battelle director Clyde Williams announced that Battelle is establishing another research center at Geneva, Switzerland, and has set up a program of fellowships for selected students in the universities of both Switzerland and Germany. In addition, research centers and fellowship programs for other countries of Western Europe are contemplated for the future.

The Frankfurt research center will engage in chemical, metallurgical, and engineering research. It is under construction on a site presented for the purpose by the City of Frankfurt, and will cost an estimated $1,000,000; another $500,000 will be required to equip it. Battelle-Frankfurt has been

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Current ACI Standards

Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315-51)
A publication of large format, bound to lie flat.
55 pages: $3.00 per copy ($1.75 to ACI Members)

Building Code Requirements for Reinforced Concrete (ACI 318-51)
64 pages in covers: 50 cents per copy (40 cents to ACI Members)

Specifications for Concrete Pavements and Bases (ACI 617-51)
24 pages in covers: 50 cents per copy (40 cents to ACI Members)

Recommended Practice for the Application of Mortar by Pneumatic Pressure (ACI 805-51)
12 pages in covers: 50 cents per copy (40 cents to ACI Members)

Recommended Practice for the Application of Portland Cement Paint to Concrete Surfaces (ACI 616-49)
16 pages in covers: 50 cents per copy (40 cents to ACI Members)

Recommended Practice for Winter Concreting Methods (ACI 604-48)
20 pages in covers: 50 cents per copy (40 cents to ACI Members)

Minimum Standard Requirements for Precast Concrete Floor Units (ACI 711-46)
16 pages in covers: 50 cents per copy (40 cents to ACI Members)

Recommended Practice for the Construction of Concrete Farm Silos (ACI 714-46)
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Recommended Practice for the Design of Concrete Mixes (ACI 613-44)
24 pages in covers: 50 cents per copy (40 cents to ACI Members)

Specifications for Cast Stone (ACI 704-44)
4 pages: 35 cents per copy

Recommended Practice for the Use of Metal Supports for Reinforcement (ACI 319-42)
4 pages: 35 cents per copy

Recommended Practice for Measuring, Mixing and Placing Concrete (ACI 614-42)
30 pages in covers: 50 cents per copy (40 cents to ACI Members)

AMERICAN CONCRETE INSTITUTE 18263 W. McNichols Rd. Detroit 19, Mich.

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Determination of moments in building frames

45 tables and diagrams . . . . .

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Resisting moments of rectangular sections
Areas and perimeters of bars
Minimum web depths
Coefficients (c) for compressive reinforcement for rectangular and T-sections
Spacing of stirrups
Spiral columns—size and pitch of spirals
Allowable stress on eccentrically loaded columns
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Moments in beams with fixed ends
Coefficients for bending moments in building frames
. . . . . and many others

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New Members

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RAMIREZ O., MARIO, San Jose, Costa Rica (Univ. of Costa Rica)
RIEDEL, MANFRED H., Urbana, Ill. (Univ. of Ill.)
SAENZ H., MANUEL A., San Jose, Costa Rica (Univ. of Costa Rica)
SANCHO C., MARIO ED., San Jose, Costa Rica (Univ. of Costa Rica)
SAUER, DAVID A., Fort Wayne, Ind. (Univ. of Ill.)
SVOBODA, GEORGE, Chicago, Ill. (Univ. of Ill.)
VARGAS M., CARLOS G., San Jose, Costa Rica (Univ. of Costa Rica)
WEBER, ROBERT R., Urbana, Ill. (Univ. of Ill.)
WILSON, ROBERT D., Los Angeles, Calif. (USC)

NRMCA short course

The seventh annual short course for technicians of the ready-mixed concrete and sand and gravel industries was held at the University of Maryland, November 17-21. The course was sponsored jointly by the National Ready Mixed Concrete Assn. and the National Sand and Gravel Assn.

This year's course emphasized laboratory practice with basic instruction in elementary concrete mixture design and calculation of yield, and classroom work in concrete mixture design and allied subjects including some advanced work with laboratory work restricted to selected demonstrations.

The subject matter presented covered such problems as field control of concrete, factors affecting strength and consistency of concrete, influence of aggregate characteristics on properties of concrete, air-entraining concrete, design of concrete mixes, and plant operating problems.

Jernigan appointed assistant manager

Curtis Jernigan has been appointed assistant manager, "Incor" and Technical Service, Lone Star Cement Corp., New York, N. Y. Mr. Jernigan was formerly assistant director of research, Lone Star Research Laboratory, Hudson, N. Y. He joined Lone Star in 1935 after graduation from William and Mary University, serving as assistant chemist in the plant laboratory at Norfolk, Va.

Battelle

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licensed by the Bonn government to operate as a nonprofit organization.

Battelle in Europe now has a staff of 35, including citizens of Germany, Belgium, Switzerland, France, Holland and England. A small force of American staff members is now working in Europe on an extended loan basis. In keeping with the original purpose for Battelle's European program, staffs of Battelle's European units will be made up predominantly of Europeans.